

Appendix F for BT LE Test Data

Product Name: Wireless Earphone

Test Model: Vibe R3

Environmental Conditions

Temperature:	22.5° C
Relative Humidity:	51.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Peng Dong
Supervised by:	Zom Zhang



F.1 RF Output Power

Condition	Mode	Frequency (MHz)	Max EIRP (dBm)	Limit (dBm)	Verdict
NVNT	BLE_1M	2402	3.71	20	Pass
NVNT	BLE_1M	2440	3.67	20	Pass
NVNT	BLE_1M	2480	3.45	20	Pass
NVNT	BLE_2M	2402	3.59	20	Pass
NVNT	BLE_2M	2440	3.38	20	Pass
NVNT	BLE_2M	2480	2.42	20	Pass

Condition	Mode	Frequency (MHz)	Max EIRP (dBm)	Limit (dBm)	Verdict
NVLT	BLE_1M	2402	3.68	20	Pass
NVLT	BLE_1M	2440	3.45	20	Pass
NVLT	BLE_1M	2480	3.42	20	Pass
NVLT	BLE_2M	2402	3.48	20	Pass
NVLT	BLE_2M	2440	3.17	20	Pass
NVLT	BLE_2M	2480	2.31	20	Pass

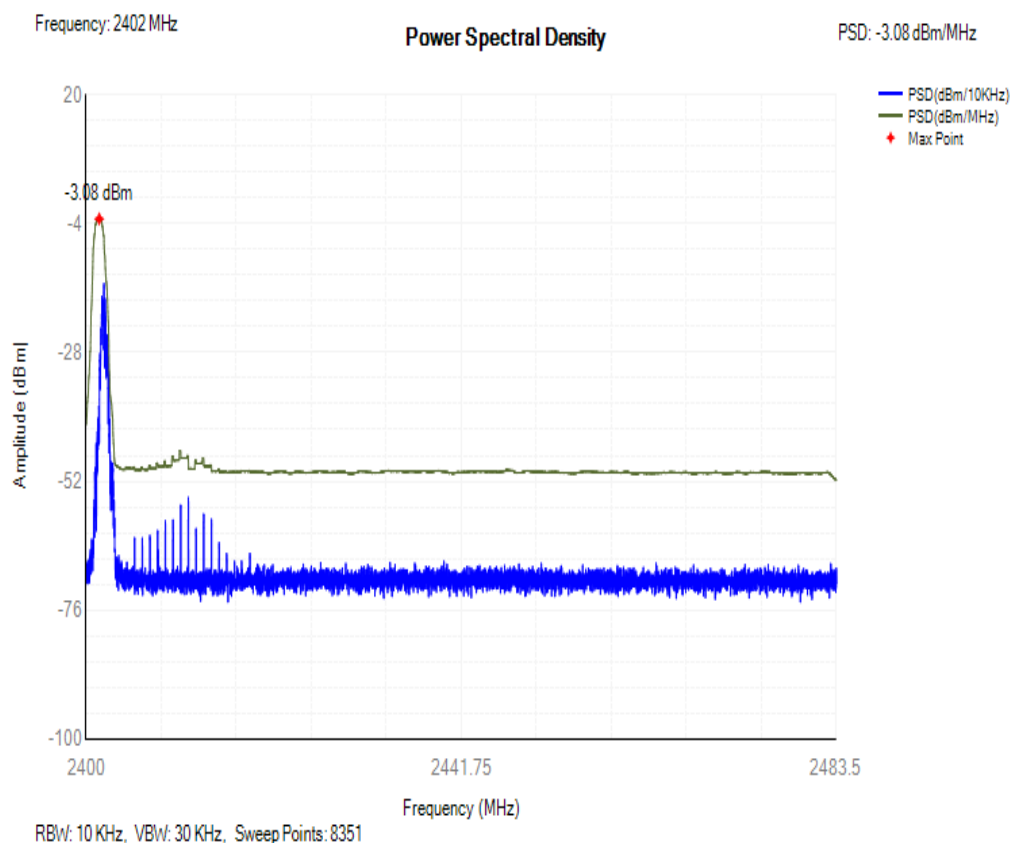
Condition	Mode	Frequency (MHz)	Max EIRP (dBm)	Limit (dBm)	Verdict
NVHT	BLE_1M	2402	3.64	20	Pass
NVHT	BLE_1M	2440	3.33	20	Pass
NVHT	BLE_1M	2480	3.28	20	Pass
NVHT	BLE_2M	2402	3.45	20	Pass
NVHT	BLE_2M	2440	3.07	20	Pass
NVHT	BLE_2M	2480	2.21	20	Pass

***Note: 20 bursts had been captured for power measurement.

F.2 Power Spectral Density

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	-3.08	10	Pass
NVNT	BLE 1M	2440	Ant1	-4.53	10	Pass
NVNT	BLE 1M	2480	Ant1	-5.99	10	Pass
NVNT	BLE 2M	2402	Ant1	-3.45	10	Pass
NVNT	BLE 2M	2440	Ant1	-4.96	10	Pass
NVNT	BLE 2M	2480	Ant1	-6.43	10	Pass





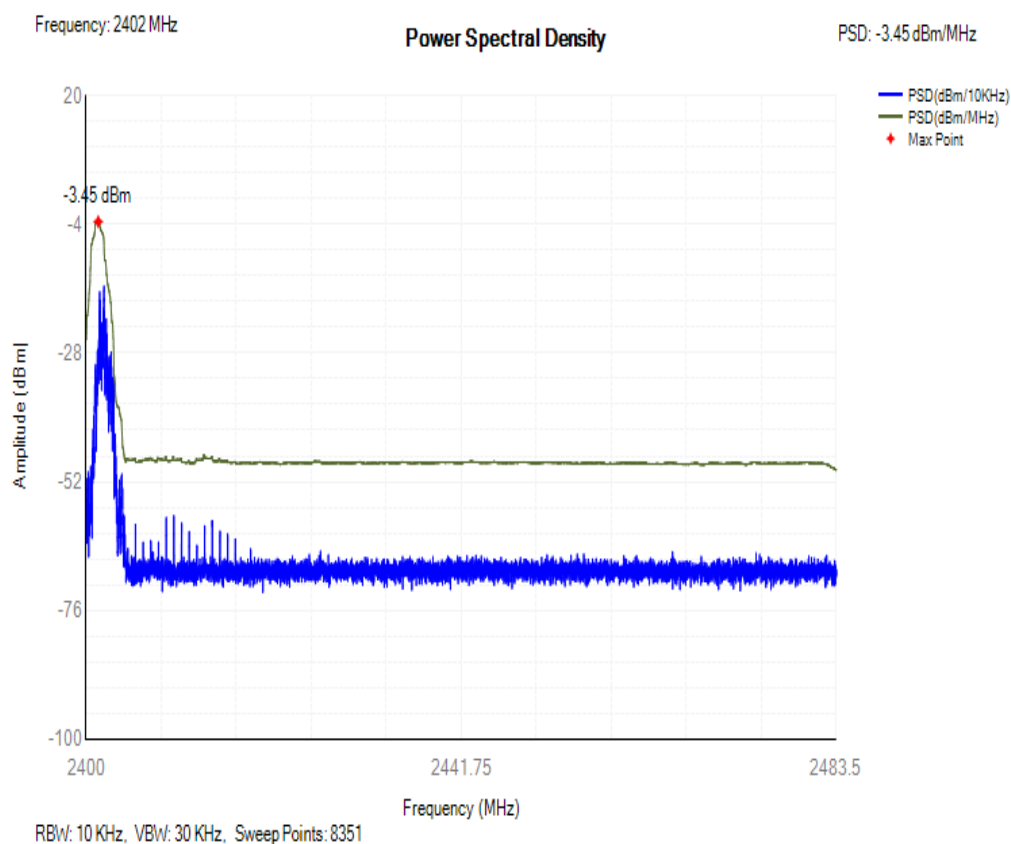
PSD NVNT BLE 1M 2402MHz Ant1



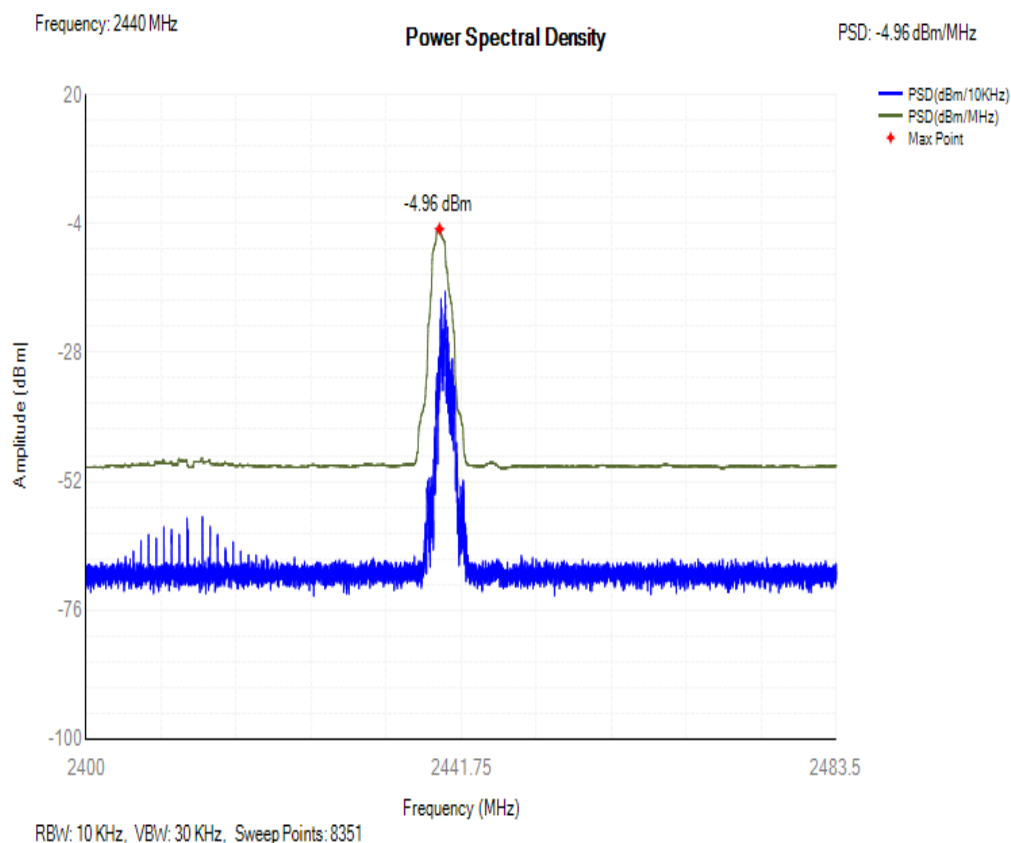
PSD NVNT BLE 1M 2440MHz Ant1



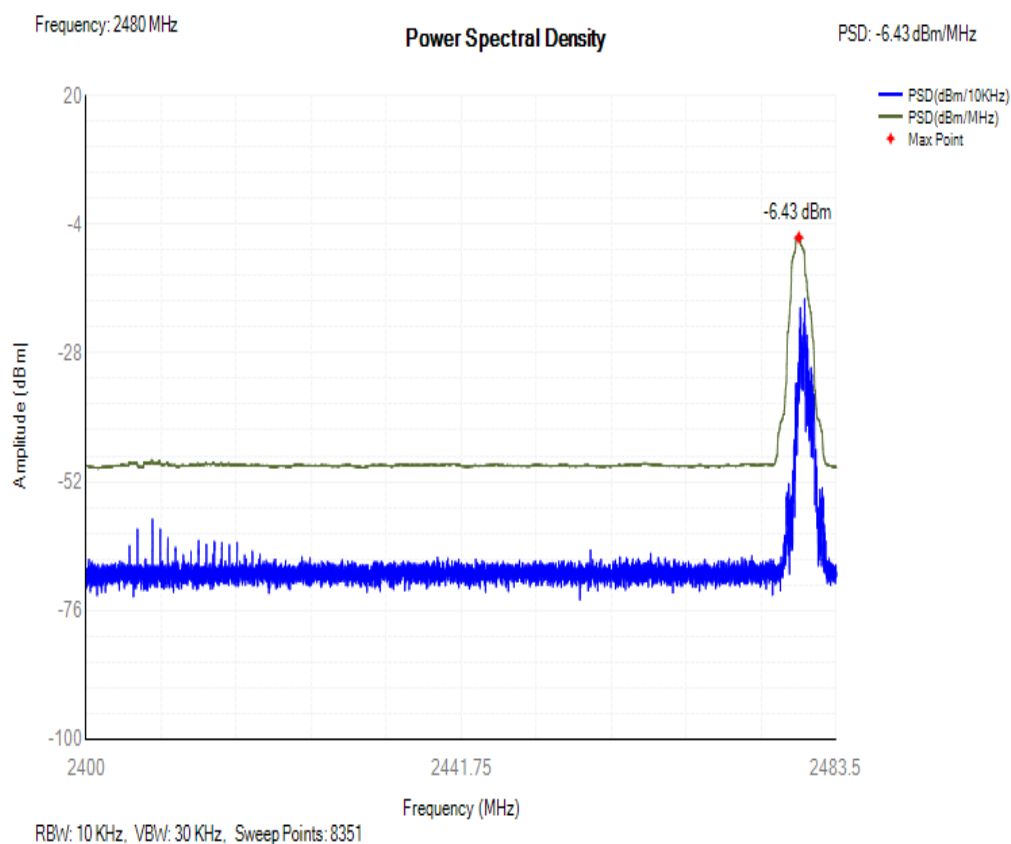
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PSD NVNT BLE 2M 2402MHz Ant1



PSD NVNT BLE 2M 2440MHz Ant1

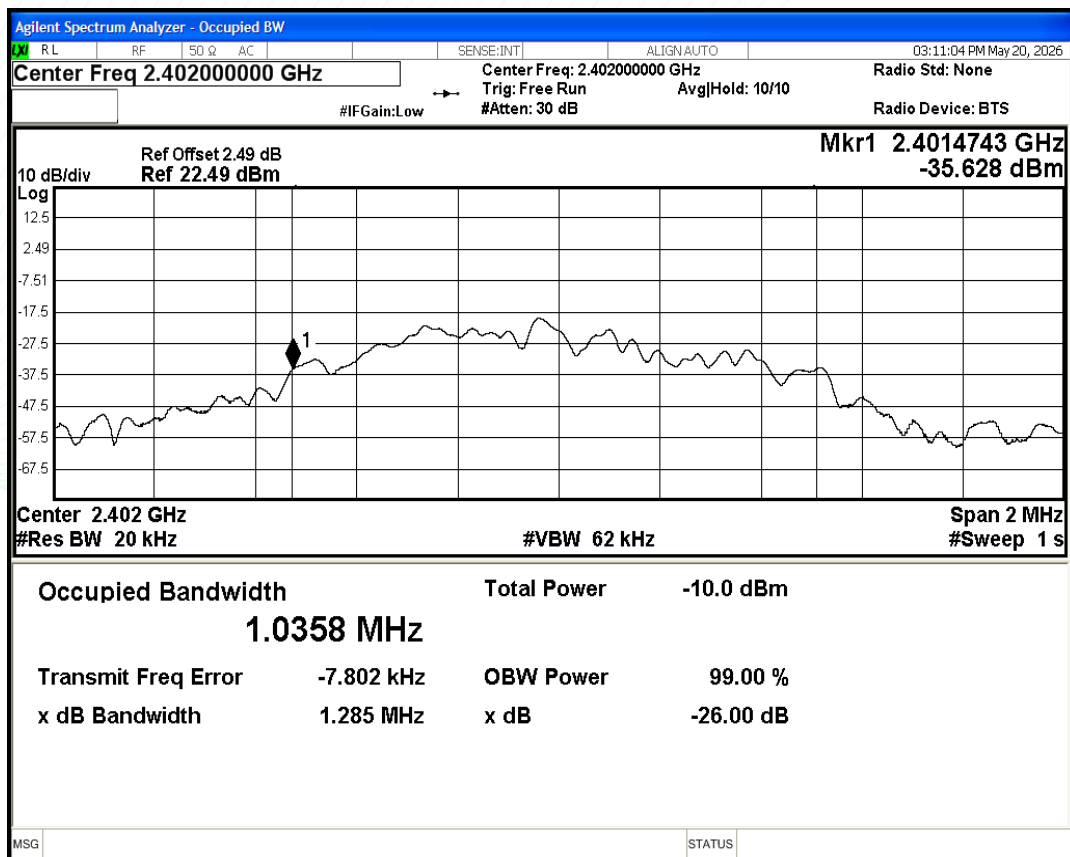


PSD NVNT BLE 2M 2480MHz Ant1

F.3 Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	Center Frequency (MHz)	OBW (MHz)	Lower Edge (MHz)	Upper Edge (MHz)	Limit OBW (MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	2401.9922	1.0358	2401.4743	2402.5101	2400 - 2483.5MHz	Pass
NVNT	BLE 1M	2440	Ant1	2439.9937	1.0329	2439.47725	2440.51015	2400 - 2483.5MHz	Pass
NVNT	BLE 1M	2480	Ant1	2479.9946	1.031	2479.4791	2480.5101	2400 - 2483.5MHz	Pass
NVNT	BLE 2M	2402	Ant1	2402.0001	2.0303	2400.98495	2403.01525	2400 - 2483.5MHz	Pass
NVNT	BLE 2M	2440	Ant1	2439.9997	2.0288	2438.9853	2441.0141	2400 - 2483.5MHz	Pass
NVNT	BLE 2M	2480	Ant1	2479.9986	2.0281	2478.98455	2481.01265	2400 - 2483.5MHz	Pass





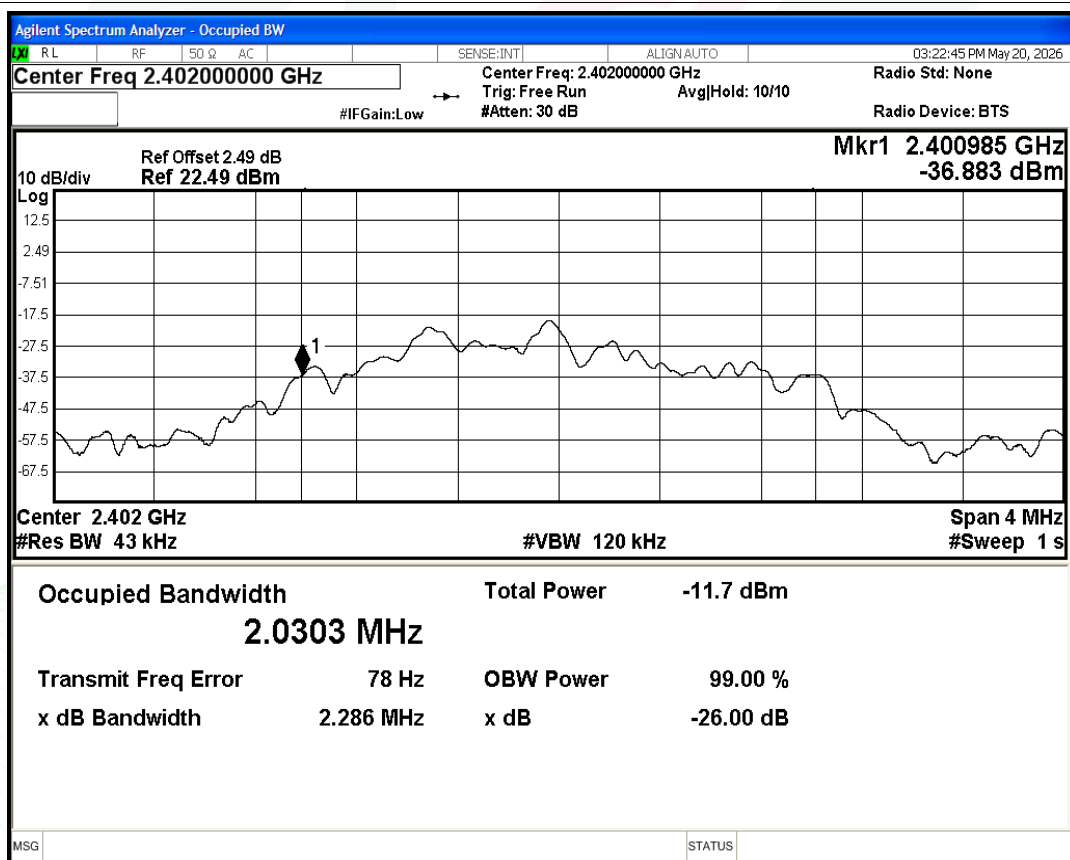
OBW NVNT BLE 1M 2402MHz Ant1



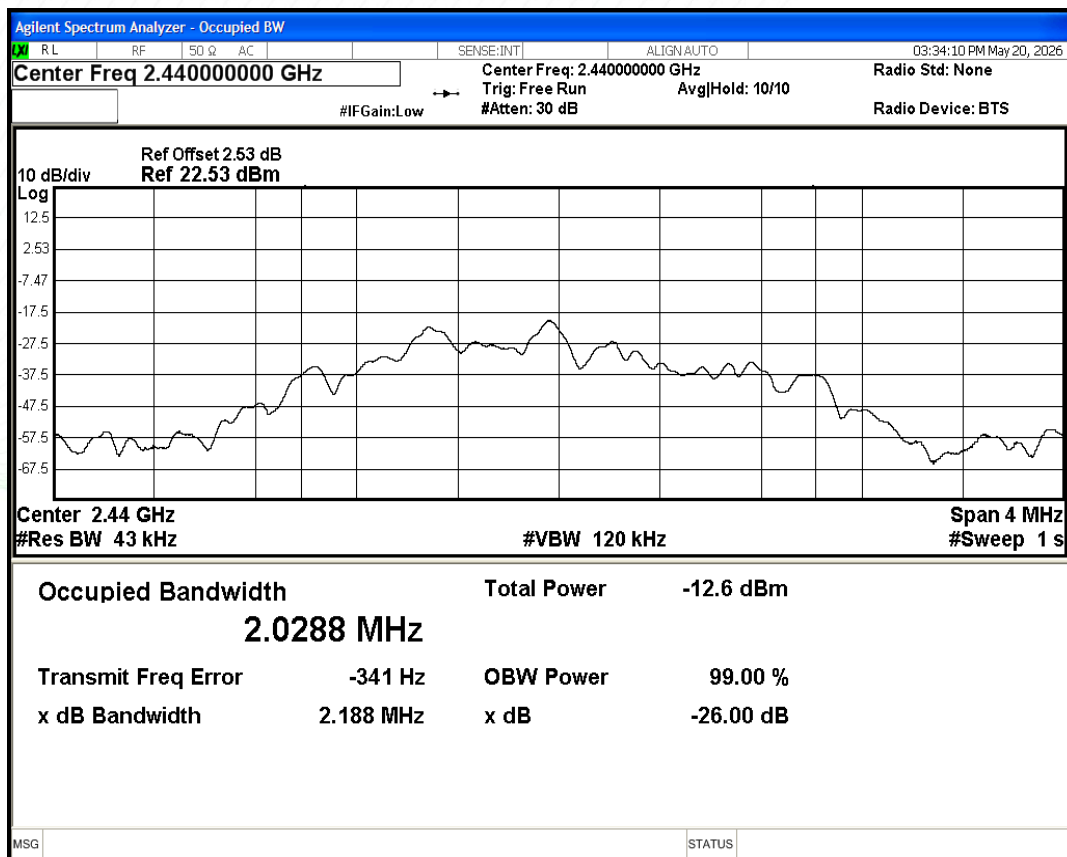
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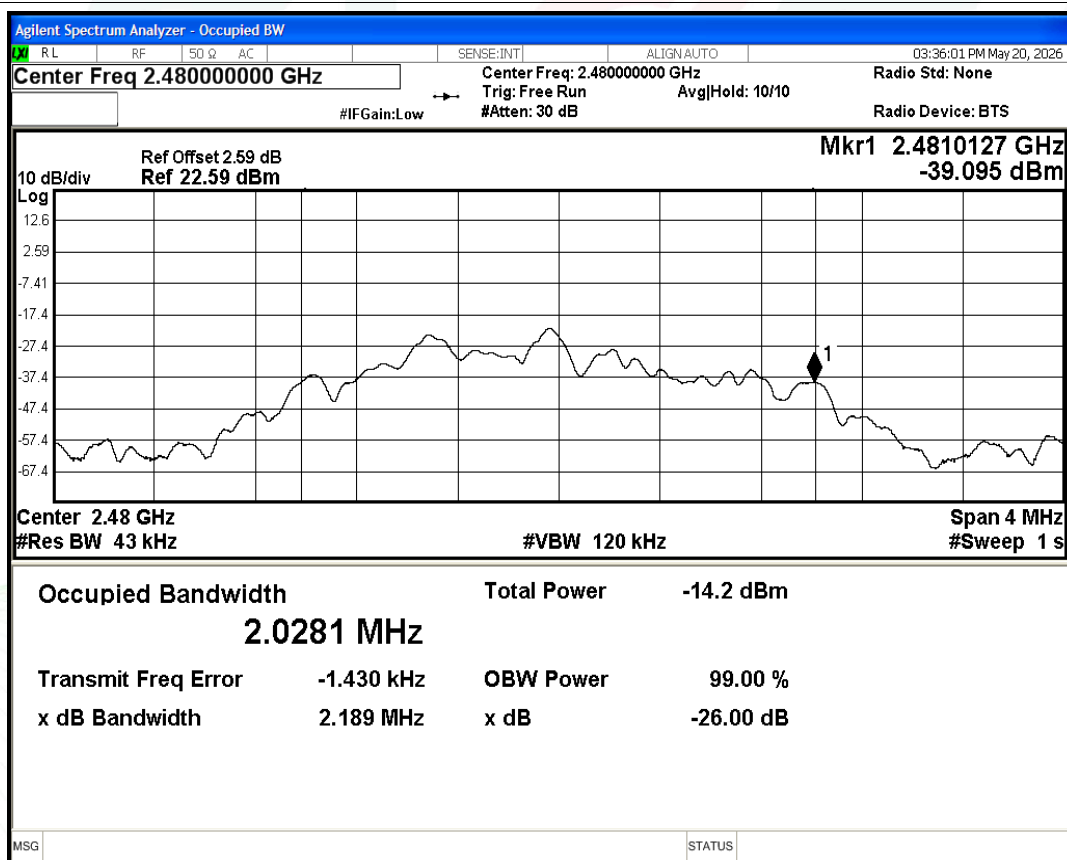
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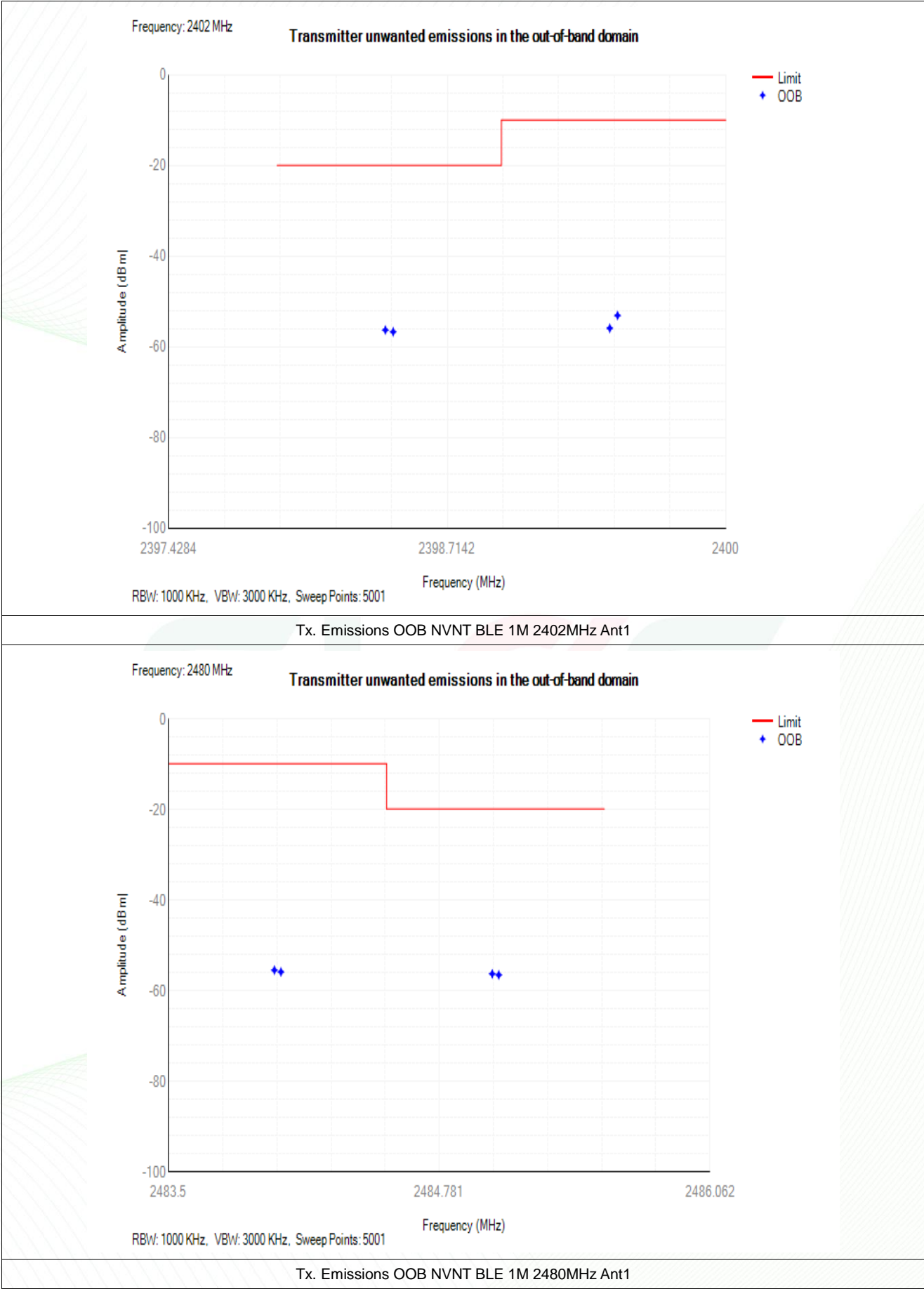
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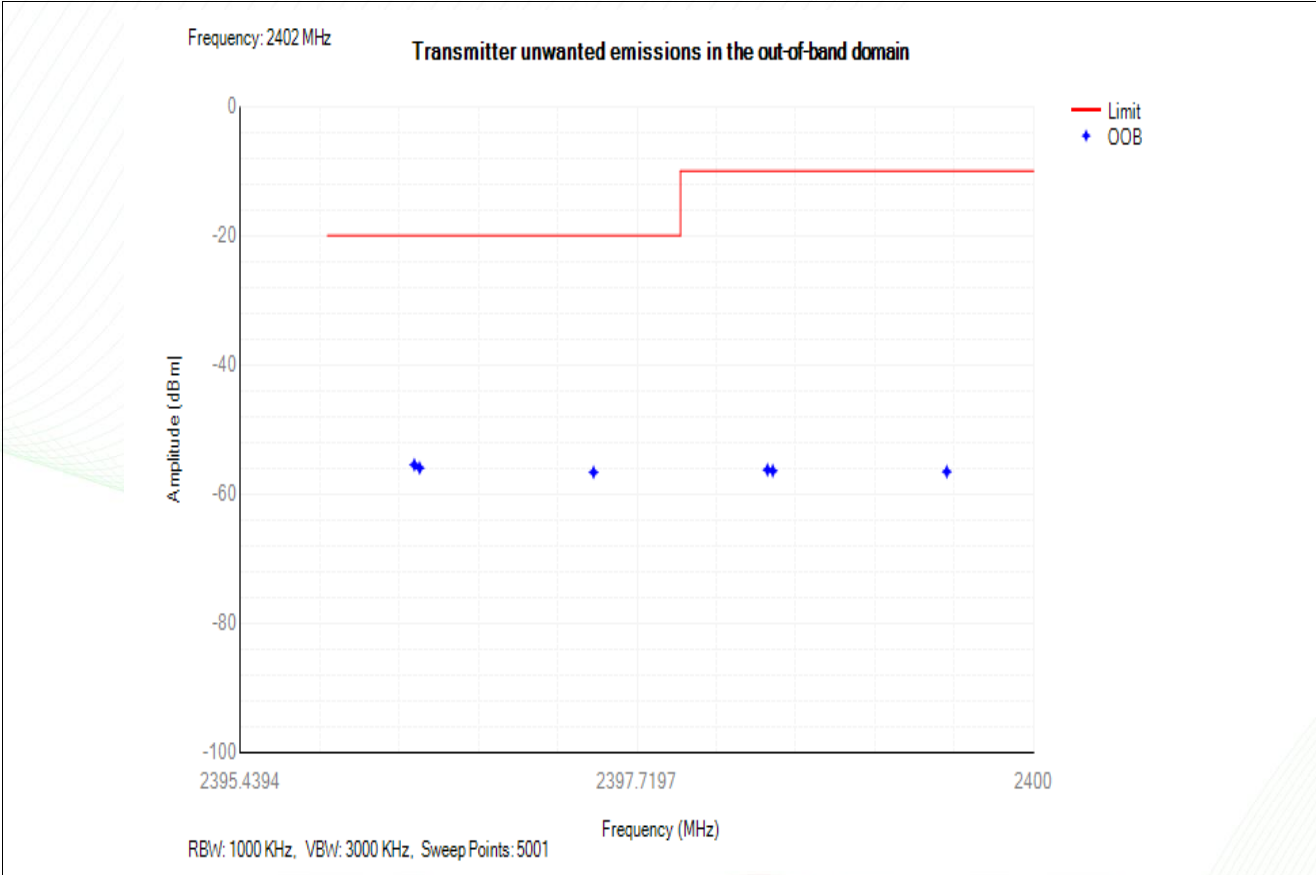


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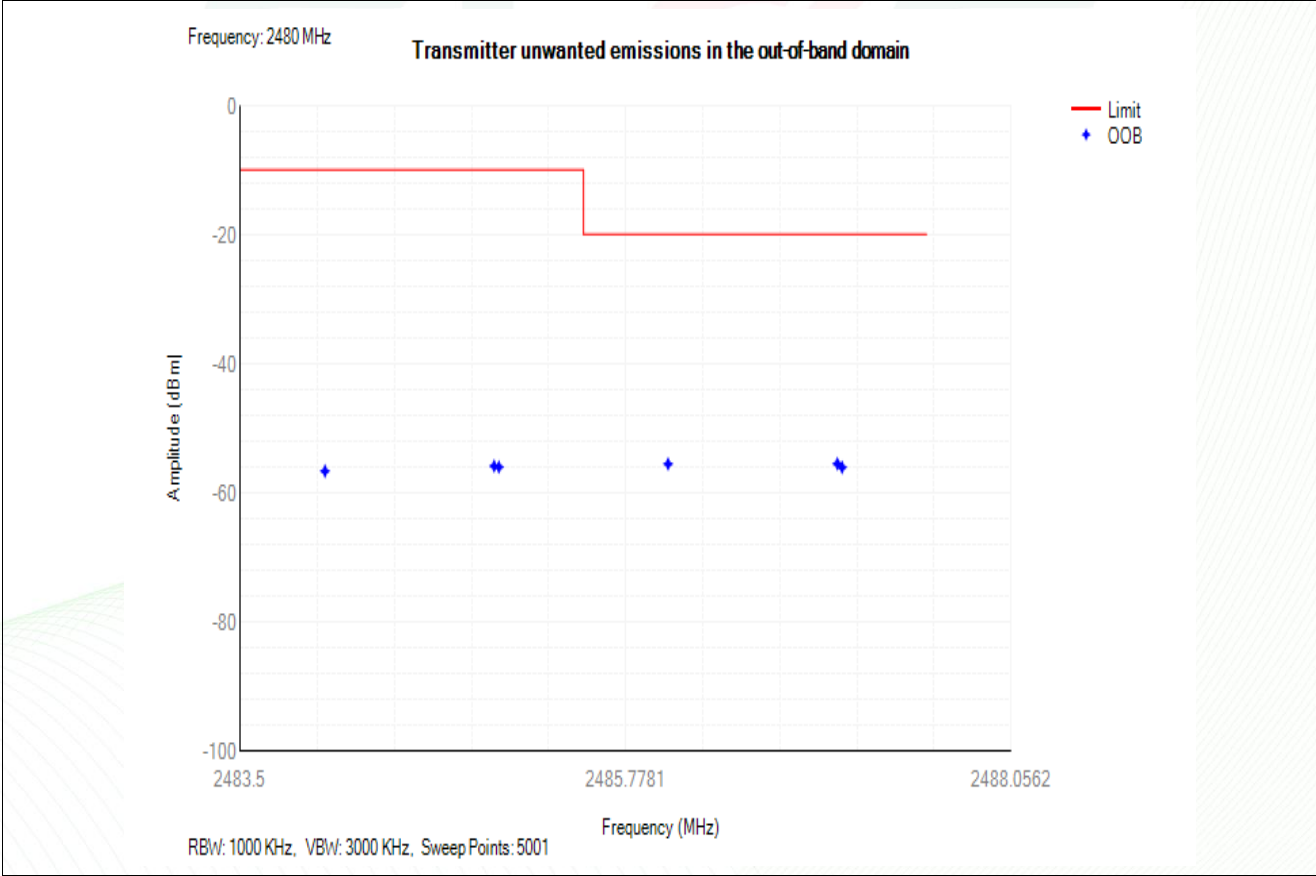
F.4 Transmitter unwanted emissions in the out-of-band domain

Condition	Mode	Frequency (MHz)	Antenna	OOB Frequency (MHz)	Level (dBm/MHz)	Limit (dBm/MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	2399.5	-53.06	-10	Pass
NVNT	BLE 1M	2402	Ant1	2399.4642	-55.88	-10	Pass
NVNT	BLE 1M	2402	Ant1	2398.4642	-56.67	-20	Pass
NVNT	BLE 1M	2402	Ant1	2398.4284	-56.27	-20	Pass
NVNT	BLE 1M	2480	Ant1	2484	-55.54	-10	Pass
NVNT	BLE 1M	2480	Ant1	2484.031	-55.94	-10	Pass
NVNT	BLE 1M	2480	Ant1	2485.031	-56.36	-20	Pass
NVNT	BLE 1M	2480	Ant1	2485.062	-56.6	-20	Pass
NVNT	BLE 2M	2402	Ant1	2399.5	-56.52	-10	Pass
NVNT	BLE 2M	2402	Ant1	2398.5	-56.39	-10	Pass
NVNT	BLE 2M	2402	Ant1	2398.4697	-56.24	-10	Pass
NVNT	BLE 2M	2402	Ant1	2397.4697	-56.61	-20	Pass
NVNT	BLE 2M	2402	Ant1	2396.4697	-55.94	-20	Pass
NVNT	BLE 2M	2402	Ant1	2396.4394	-55.46	-20	Pass
NVNT	BLE 2M	2480	Ant1	2484	-56.68	-10	Pass
NVNT	BLE 2M	2480	Ant1	2485	-55.89	-10	Pass
NVNT	BLE 2M	2480	Ant1	2485.0281	-56.04	-10	Pass
NVNT	BLE 2M	2480	Ant1	2486.0281	-55.57	-20	Pass
NVNT	BLE 2M	2480	Ant1	2487.0281	-55.54	-20	Pass
NVNT	BLE 2M	2480	Ant1	2487.0562	-56.09	-20	Pass





Tx. Emissions OOB NVNT BLE 2M 2402MHz Ant1

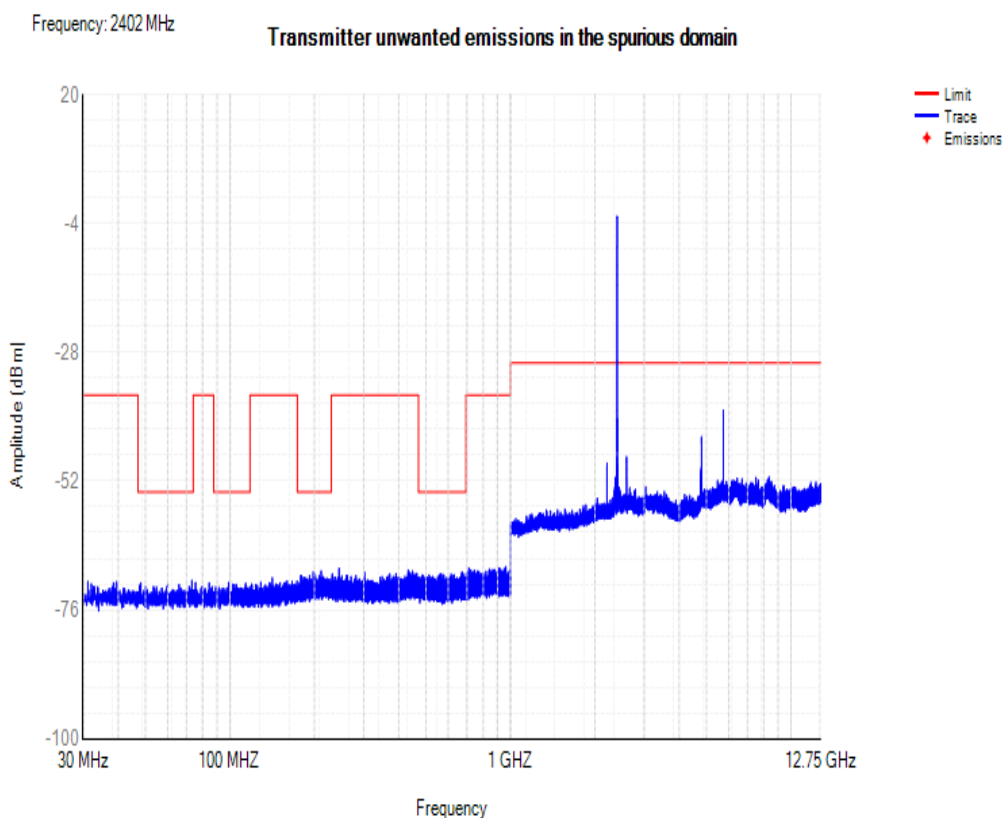


Tx. Emissions OOB NVNT BLE 2M 2480MHz Ant1

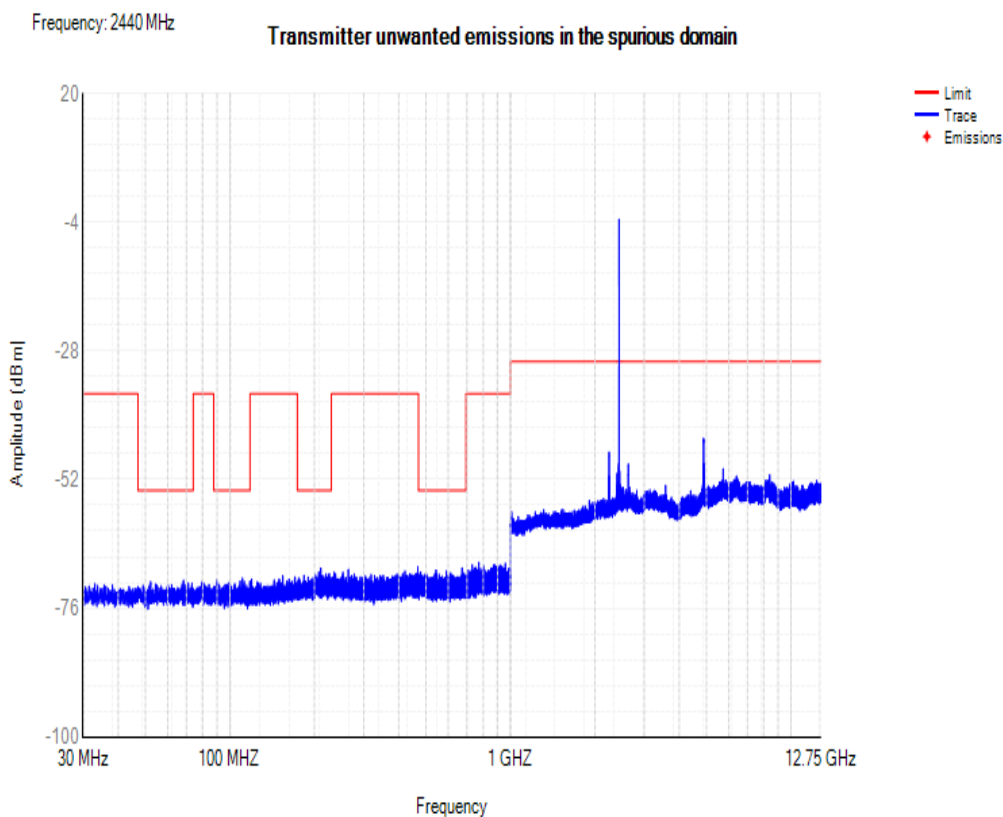
F.5 Transmitter unwanted emissions in the spurious domain

Condition	Mode	Frequency (MHz)	Antenna	Range (MHz)	Spur Freq (MHz)	Peak (dBm)	RMS (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	30 -47	31.15	-70.70	NA	-36	Pass
NVNT	BLE 1M	2402	Ant1	47 -74	73.15	-70.48	NA	-54	Pass
NVNT	BLE 1M	2402	Ant1	74 -87.5	75.40	-70.90	NA	-36	Pass
NVNT	BLE 1M	2402	Ant1	87.5 -118	99.00	-70.86	NA	-54	Pass
NVNT	BLE 1M	2402	Ant1	118 -174	141.60	-70.02	NA	-36	Pass
NVNT	BLE 1M	2402	Ant1	174 -230	211.40	-68.74	NA	-54	Pass
NVNT	BLE 1M	2402	Ant1	230 -470	244.85	-68.25	NA	-36	Pass
NVNT	BLE 1M	2402	Ant1	470 -694	674.65	-68.98	NA	-54	Pass
NVNT	BLE 1M	2402	Ant1	694 -1000	963.85	-67.96	NA	-36	Pass
NVNT	BLE 1M	2402	Ant1	1000 -2398	2210.00	-48.64	NA	-30	Pass
NVNT	BLE 1M	2402	Ant1	2485.5 -12750	5743.50	-38.82	NA	-30	Pass
NVNT	BLE 1M	2440	Ant1	30 -47	33.00	-71.46	NA	-36	Pass
NVNT	BLE 1M	2440	Ant1	47 -74	68.30	-70.79	NA	-54	Pass
NVNT	BLE 1M	2440	Ant1	74 -87.5	79.40	-71.15	NA	-36	Pass
NVNT	BLE 1M	2440	Ant1	87.5 -118	110.80	-70.40	NA	-54	Pass
NVNT	BLE 1M	2440	Ant1	118 -174	154.30	-69.93	NA	-36	Pass
NVNT	BLE 1M	2440	Ant1	174 -230	210.75	-68.51	NA	-54	Pass
NVNT	BLE 1M	2440	Ant1	230 -470	467.65	-68.28	NA	-36	Pass
NVNT	BLE 1M	2440	Ant1	470 -694	672.80	-68.48	NA	-54	Pass
NVNT	BLE 1M	2440	Ant1	694 -1000	772.00	-67.43	NA	-36	Pass
NVNT	BLE 1M	2440	Ant1	1000 -2398	2248.00	-46.89	NA	-30	Pass
NVNT	BLE 1M	2440	Ant1	2485.5 -12750	4879.50	-44.35	NA	-30	Pass
NVNT	BLE 1M	2480	Ant1	30 -47	36.35	-70.77	NA	-36	Pass
NVNT	BLE 1M	2480	Ant1	47 -74	60.35	-71.27	NA	-54	Pass
NVNT	BLE 1M	2480	Ant1	74 -87.5	80.00	-71.08	NA	-36	Pass
NVNT	BLE 1M	2480	Ant1	87.5 -118	109.55	-70.38	NA	-54	Pass
NVNT	BLE 1M	2480	Ant1	118 -174	161.85	-70.23	NA	-36	Pass
NVNT	BLE 1M	2480	Ant1	174 -230	210.20	-68.96	NA	-54	Pass
NVNT	BLE 1M	2480	Ant1	230 -470	388.80	-68.25	NA	-36	Pass
NVNT	BLE 1M	2480	Ant1	470 -694	480.40	-68.26	NA	-54	Pass
NVNT	BLE 1M	2480	Ant1	694 -1000	851.20	-67.56	NA	-36	Pass
NVNT	BLE 1M	2480	Ant1	1000 -2398	2287.50	-46.49	NA	-30	Pass
NVNT	BLE 1M	2480	Ant1	2485.5 -12750	4960.00	-42.80	NA	-30	Pass
NVNT	BLE 2M	2402	Ant1	30 -47	44.10	-70.53	NA	-36	Pass
NVNT	BLE 2M	2402	Ant1	47 -74	72.55	-70.73	NA	-54	Pass
NVNT	BLE 2M	2402	Ant1	74 -87.5	77.35	-71.08	NA	-36	Pass
NVNT	BLE 2M	2402	Ant1	87.5 -118	111.35	-70.80	NA	-54	Pass
NVNT	BLE 2M	2402	Ant1	118 -174	125.00	-70.31	NA	-36	Pass
NVNT	BLE 2M	2402	Ant1	174 -230	211.30	-68.87	NA	-54	Pass
NVNT	BLE 2M	2402	Ant1	230 -470	382.50	-68.90	NA	-36	Pass
NVNT	BLE 2M	2402	Ant1	470 -694	476.45	-69.07	NA	-54	Pass

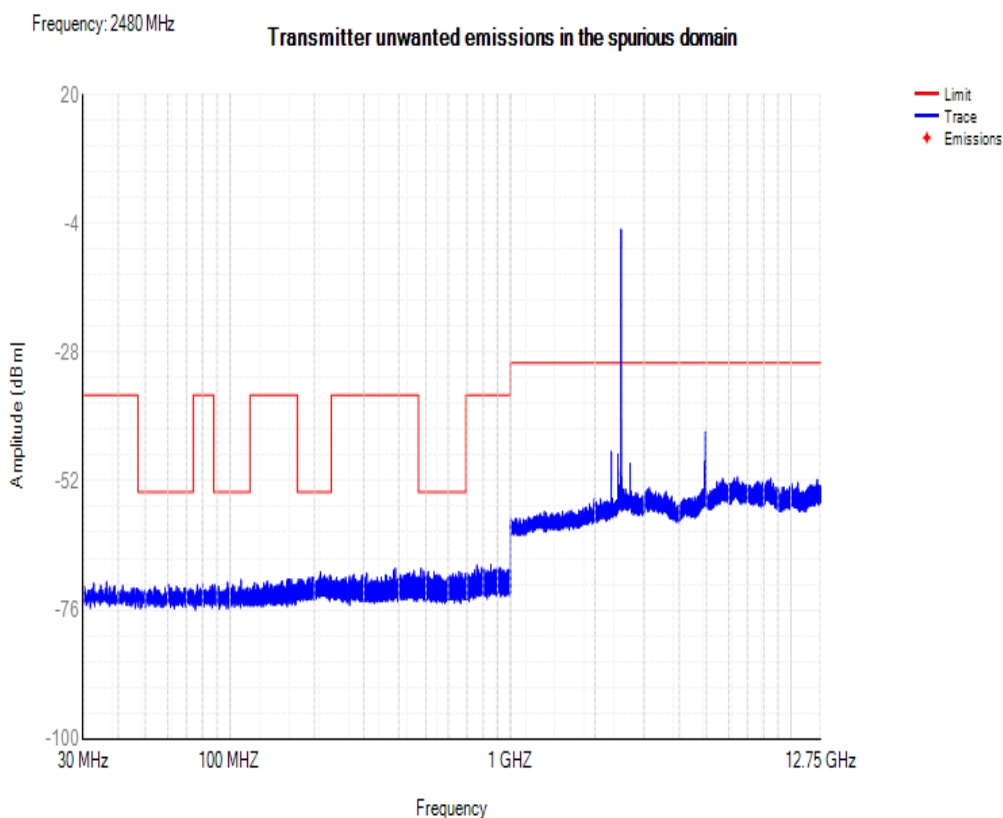
NVNT	BLE 2M	2402	Ant1	694 -1000	862.45	-67.49	NA	-36	Pass
NVNT	BLE 2M	2402	Ant1	1000 -2396	2395.50	-46.33	NA	-30	Pass
NVNT	BLE 2M	2402	Ant1	2487.5 -12750	4804.00	-43.90	NA	-30	Pass
NVNT	BLE 2M	2440	Ant1	30 -47	40.05	-70.20	NA	-36	Pass
NVNT	BLE 2M	2440	Ant1	47 -74	56.25	-69.97	NA	-54	Pass
NVNT	BLE 2M	2440	Ant1	74 -87.5	77.30	-71.08	NA	-36	Pass
NVNT	BLE 2M	2440	Ant1	87.5 -118	103.30	-69.93	NA	-54	Pass
NVNT	BLE 2M	2440	Ant1	118 -174	155.65	-70.70	NA	-36	Pass
NVNT	BLE 2M	2440	Ant1	174 -230	181.15	-68.77	NA	-54	Pass
NVNT	BLE 2M	2440	Ant1	230 -470	440.55	-68.20	NA	-36	Pass
NVNT	BLE 2M	2440	Ant1	470 -694	542.90	-68.85	NA	-54	Pass
NVNT	BLE 2M	2440	Ant1	694 -1000	965.05	-67.49	NA	-36	Pass
NVNT	BLE 2M	2440	Ant1	1000 -2396	2247.50	-47.82	NA	-30	Pass
NVNT	BLE 2M	2440	Ant1	2487.5 -12750	5752.50	-44.00	NA	-30	Pass
NVNT	BLE 2M	2480	Ant1	30 -47	33.85	-71.32	NA	-36	Pass
NVNT	BLE 2M	2480	Ant1	47 -74	50.55	-70.33	NA	-54	Pass
NVNT	BLE 2M	2480	Ant1	74 -87.5	79.95	-71.26	NA	-36	Pass
NVNT	BLE 2M	2480	Ant1	87.5 -118	89.15	-70.62	NA	-54	Pass
NVNT	BLE 2M	2480	Ant1	118 -174	167.10	-69.54	NA	-36	Pass
NVNT	BLE 2M	2480	Ant1	174 -230	183.40	-69.26	NA	-54	Pass
NVNT	BLE 2M	2480	Ant1	230 -470	243.45	-68.80	NA	-36	Pass
NVNT	BLE 2M	2480	Ant1	470 -694	484.30	-69.14	NA	-54	Pass
NVNT	BLE 2M	2480	Ant1	694 -1000	963.75	-67.62	NA	-36	Pass
NVNT	BLE 2M	2480	Ant1	1000 -2396	2288.00	-46.91	NA	-30	Pass
NVNT	BLE 2M	2480	Ant1	2487.5 -12750	4959.50	-43.67	NA	-30	Pass



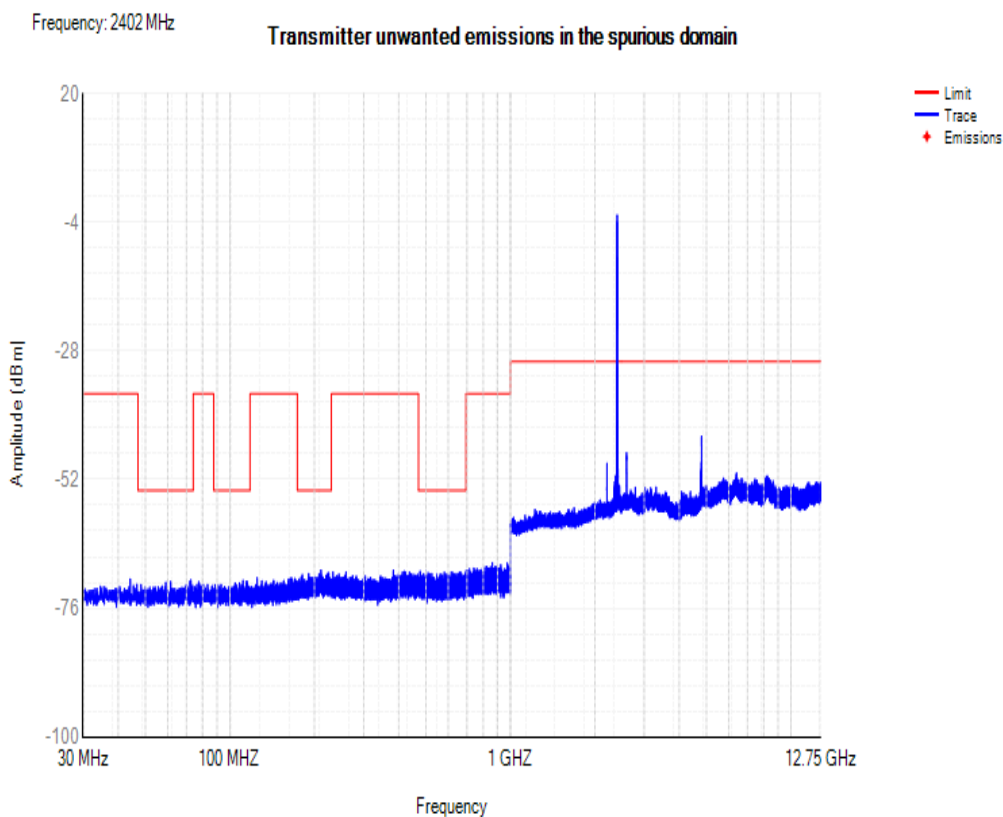
Tx. Spurious NVNT BLE 1M 2402MHz Ant1



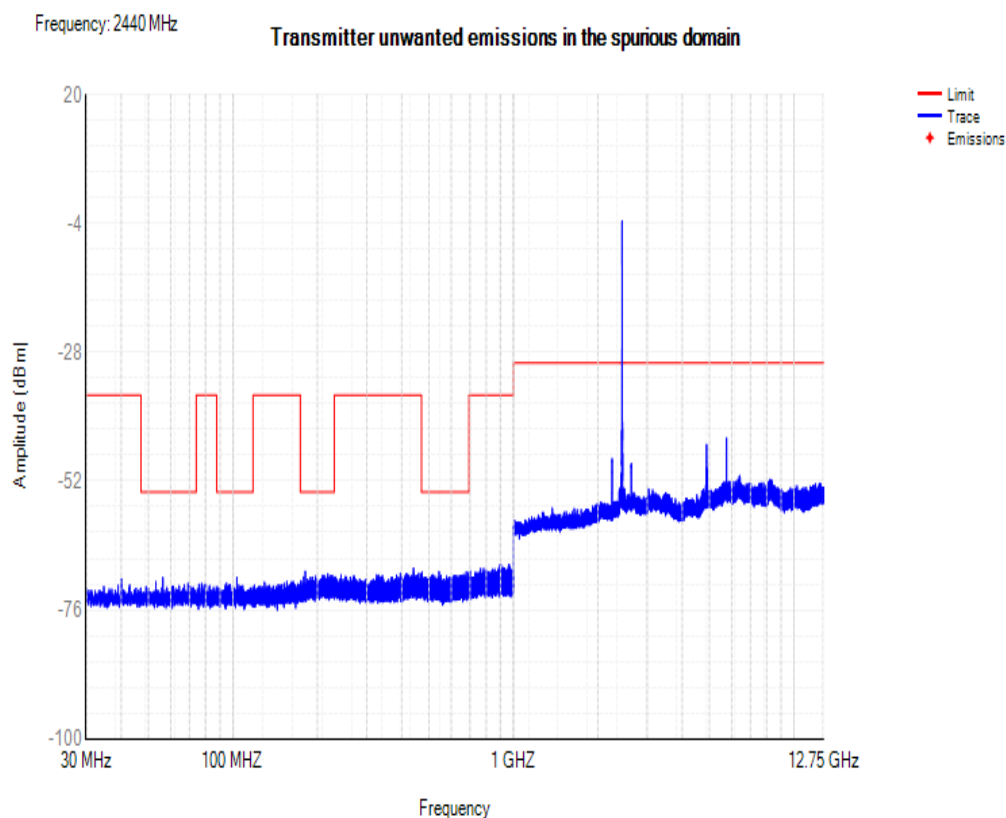
Tx. Spurious NVNT BLE 1M 2440MHz Ant1



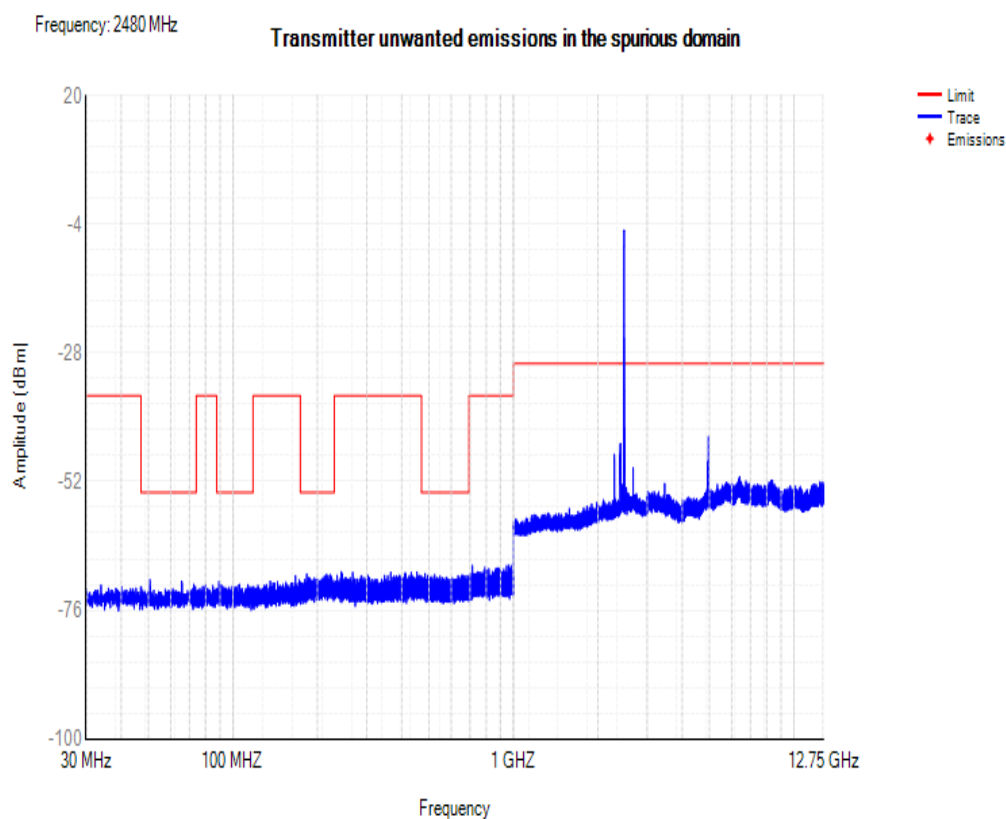
Tx. Spurious NVNT BLE 1M 2480MHz Ant1



Tx. Spurious NVNT BLE 2M 2402MHz Ant1



Tx. Spurious NVNT BLE 2M 2440MHz Ant1



Tx. Spurious NVNT BLE 2M 2480MHz Ant1

Tx. Spurious NVNT BLE_1M

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 0 (2402MHz)					
79.80	H	-39.50	-36.00	-3.50	PK
76.87	V	-44.78	-36.00	-8.78	PK
206.42	H	-67.99	-54.00	-13.99	PK
280.69	V	-46.20	-36.00	-10.20	PK
4804.22	H	-43.14	-30.00	-13.14	PK
4802.61	V	-41.02	-30.00	-11.02	PK
7202.81	H	-39.61	-30.00	-9.61	PK
7203.56	V	-42.44	-30.00	-12.44	PK
Channel 39 (2480MHz)					
128.54	H	-46.54	-36.00	-10.54	PK
72.90	V	-59.24	-54.00	-5.24	PK
566.63	H	-57.63	-54.00	-3.63	PK
458.07	V	-44.50	-36.00	-8.50	PK
4960.99	H	-35.02	-30.00	-5.02	PK
4963.53	V	-35.62	-30.00	-5.62	PK
7440.56	H	-36.71	-30.00	-6.71	PK
7442.44	V	-35.37	-30.00	-5.37	PK

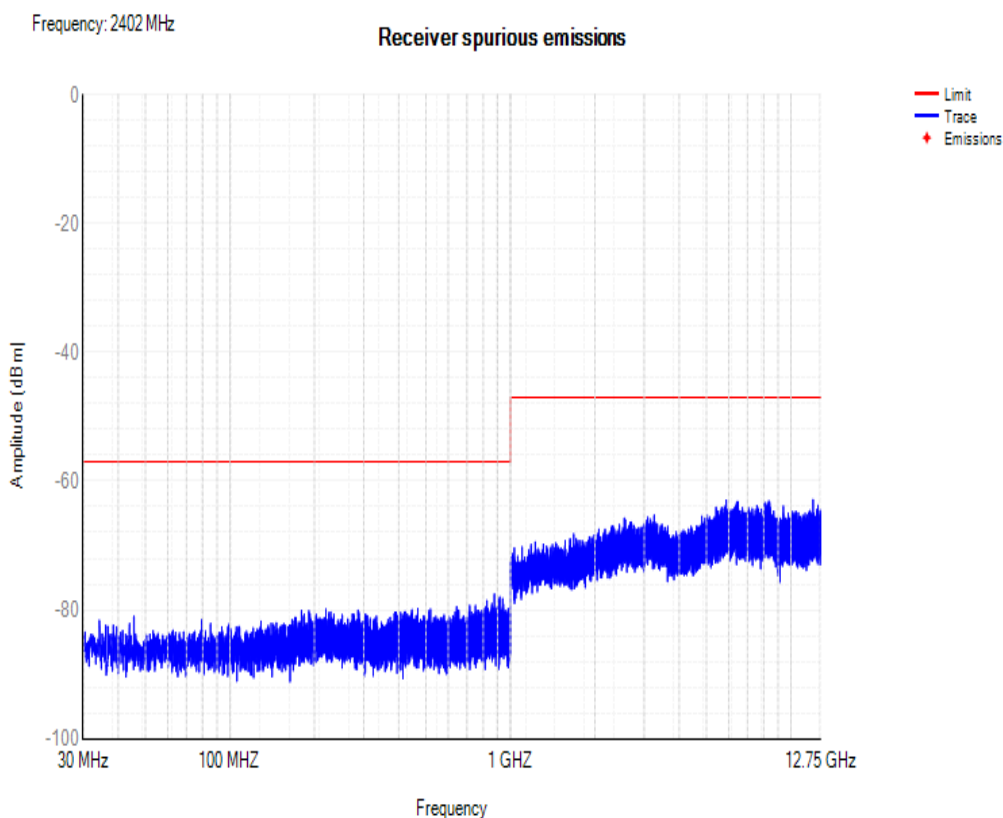
Tx. Spurious NVNT BLE_2M

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 0 (2402MHz)					
107.51	H	-66.49	-54.00	-12.49	PK
43.81	V	-39.70	-36.00	-3.70	PK
343.12	H	-39.62	-36.00	-3.62	PK
203.93	V	-67.54	-54.00	-13.54	PK
4803.28	H	-37.09	-30.00	-7.09	PK
4803.36	V	-41.59	-30.00	-11.59	PK
7203.88	H	-44.89	-30.00	-14.89	PK
7203.20	V	-41.33	-30.00	-11.33	PK
Channel 39 (2480MHz)					
50.22	H	-60.86	-54.00	-6.86	PK
83.11	V	-47.41	-36.00	-11.41	PK
198.95	H	-67.73	-54.00	-13.73	PK
353.09	V	-42.26	-36.00	-6.26	PK
4962.58	H	-36.27	-30.00	-6.27	PK
4961.55	V	-36.36	-30.00	-6.36	PK
7440.80	H	-43.99	-30.00	-13.99	PK
7442.54	V	-36.82	-30.00	-6.82	PK

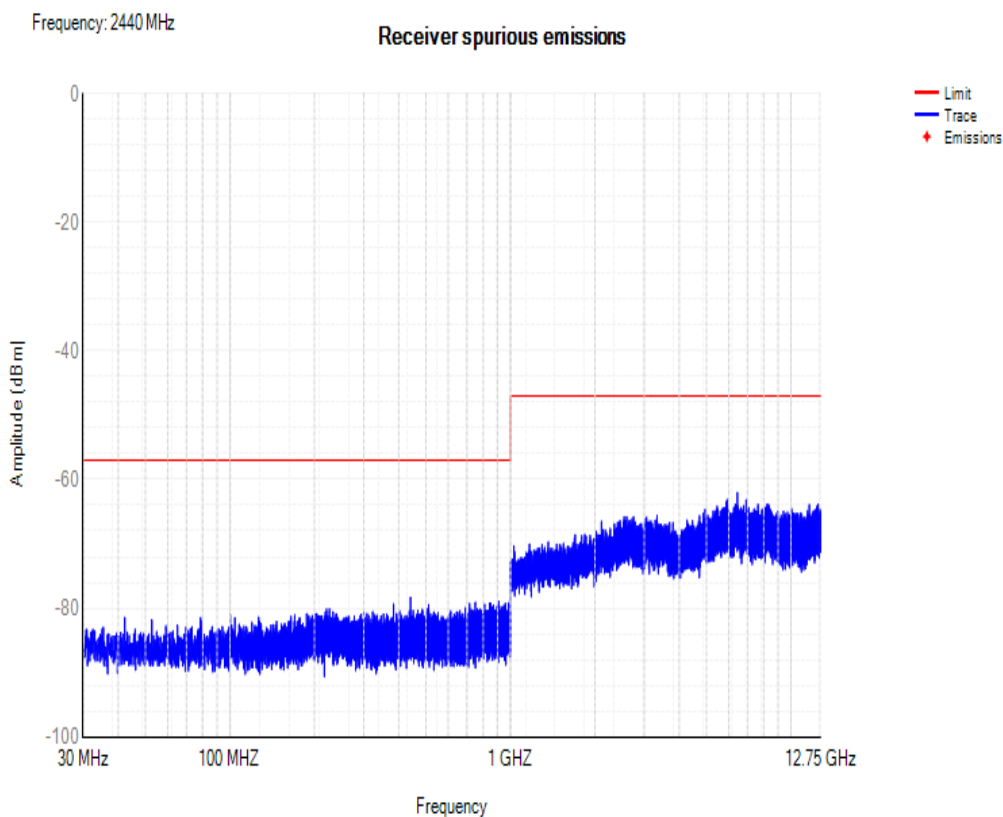
F.6 Receiver spurious emissions

Condition	Mode	Frequency (MHz)	Antenna	Range (MHz)	Spur Freq (MHz)	Peak (dBm)	RMS (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	30 -1000	877	-77.51	NA	-57	Pass
NVNT	BLE 1M	2402	Ant1	1000 -12750	11987	-62.86	NA	-47	Pass
NVNT	BLE 1M	2440	Ant1	30 -1000	440.3	-78.32	NA	-57	Pass
NVNT	BLE 1M	2440	Ant1	1000 -12750	6442.5	-62.02	NA	-47	Pass
NVNT	BLE 1M	2480	Ant1	30 -1000	946.75	-78.32	NA	-57	Pass
NVNT	BLE 1M	2480	Ant1	1000 -12750	5313.5	-62.78	NA	-47	Pass
NVNT	BLE 2M	2402	Ant1	30 -1000	909.9	-78.37	NA	-57	Pass
NVNT	BLE 2M	2402	Ant1	1000 -12750	8231	-62.63	NA	-47	Pass
NVNT	BLE 2M	2440	Ant1	30 -1000	928.5	-79.03	NA	-57	Pass
NVNT	BLE 2M	2440	Ant1	1000 -12750	8135	-63.06	NA	-47	Pass
NVNT	BLE 2M	2480	Ant1	30 -1000	934.4	-78.21	NA	-57	Pass
NVNT	BLE 2M	2480	Ant1	1000 -12750	6381	-62.15	NA	-47	Pass

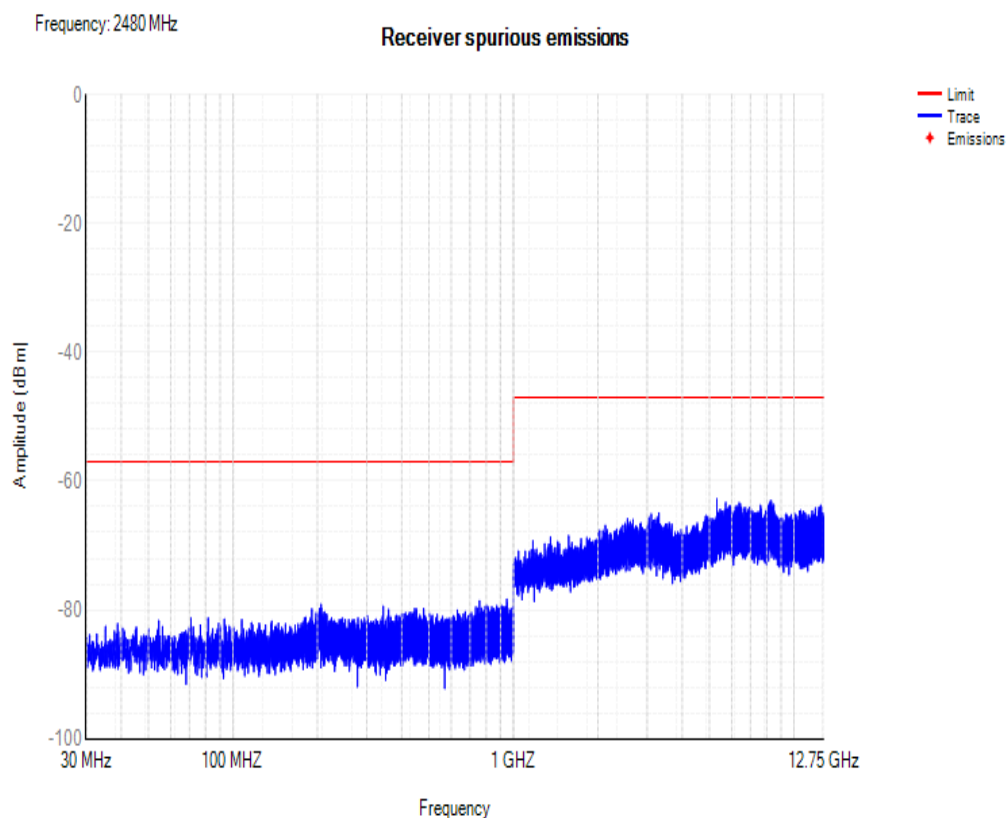




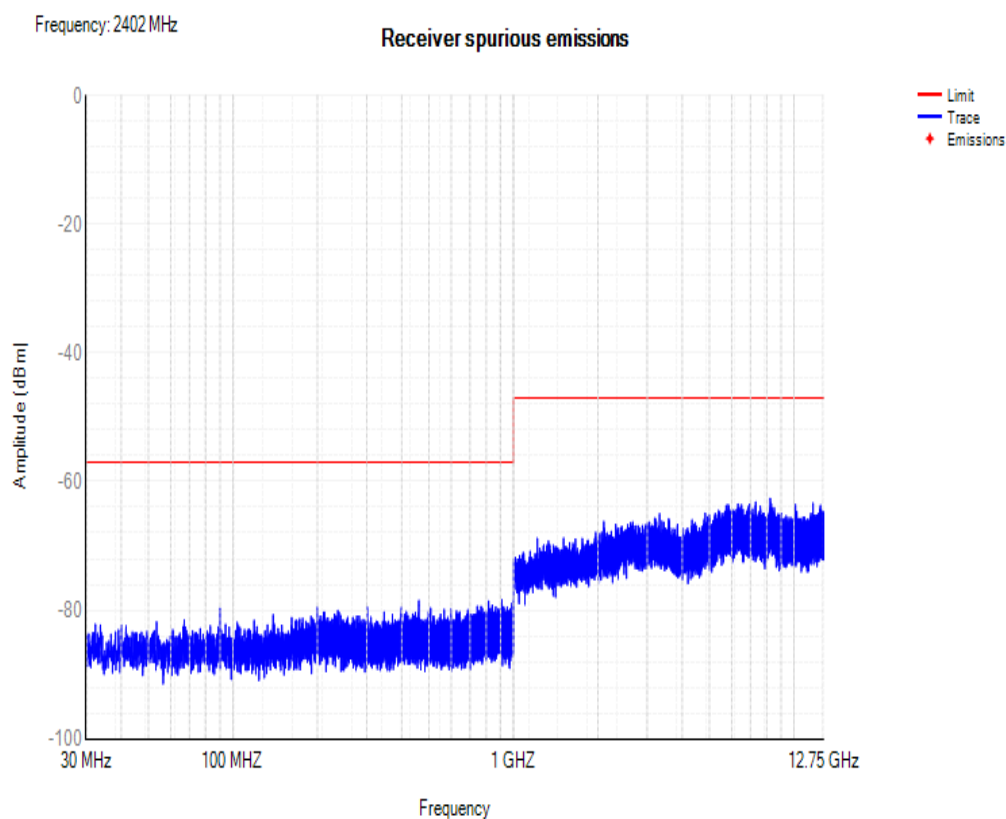
Rx. Spurious NVNT BLE 1M 2402MHz Ant1



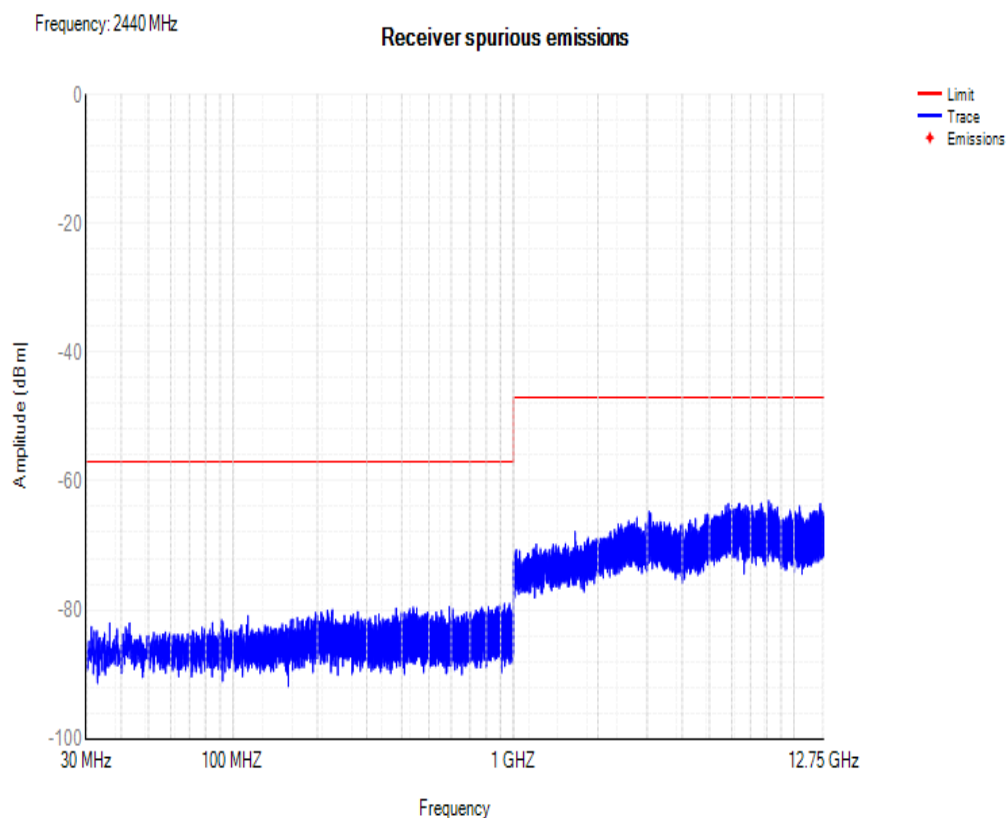
Rx. Spurious NVNT BLE 1M 2440MHz Ant1



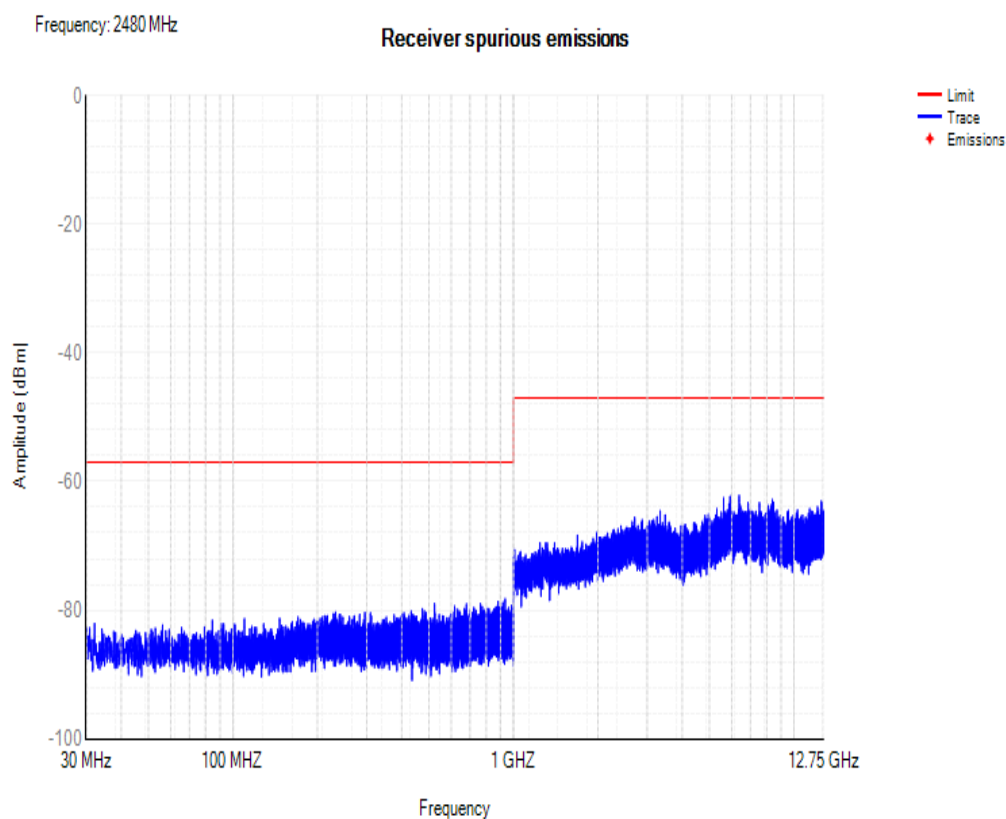
Rx. Spurious NVNT BLE 1M 2480MHz Ant1



Rx. Spurious NVNT BLE 2M 2402MHz Ant1



Rx. Spurious NVNT BLE 2M 2440MHz Ant1



Rx. Spurious NVNT BLE 2M 2480MHz Ant1

Rx. Spurious NVNT BLE_1M

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 0 (2402MHz)					
322.07	H	-68.69	-57.00	-11.69	PK
445.51	V	-72.53	-57.00	-15.53	PK
998.86	H	-64.50	-57.00	-7.50	PK
923.57	V	-66.78	-57.00	-9.78	PK
1356.61	H	-62.41	-47.00	-15.41	PK
1485.71	V	-60.67	-47.00	-13.67	PK
2201.91	H	-58.33	-47.00	-11.33	PK
2204.07	V	-59.12	-47.00	-12.12	PK
Channel 39 (2480MHz)					
446.85	H	-66.61	-57.00	-9.61	PK
341.51	V	-70.74	-57.00	-13.74	PK
511.85	H	-74.46	-57.00	-17.46	PK
746.77	V	-74.54	-57.00	-17.54	PK
1692.04	H	-65.39	-47.00	-18.39	PK
1446.01	V	-56.82	-47.00	-9.82	PK
2552.59	H	-72.97	-47.00	-25.97	PK
2138.12	V	-50.30	-47.00	-3.30	PK

Rx. Spurious NVNT BLE_2M

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
Channel 0 (2402MHz)					
481.04	H	-66.12	-57.00	-9.12	PK
470.69	V	-68.02	-57.00	-11.02	PK
887.11	H	-65.47	-57.00	-8.47	PK
675.22	V	-62.18	-57.00	-5.18	PK
1977.18	H	-65.12	-47.00	-18.12	PK
1279.20	V	-72.49	-47.00	-25.49	PK
2230.81	H	-50.05	-47.00	-3.05	PK
2193.43	V	-51.26	-47.00	-4.26	PK
Channel 39 (2480MHz)					
352.76	H	-74.72	-57.00	-17.72	PK
87.39	V	-72.32	-57.00	-15.32	PK
943.85	H	-63.91	-57.00	-6.91	PK
968.78	V	-70.73	-57.00	-13.73	PK
1082.23	H	-74.34	-47.00	-27.34	PK
1271.39	V	-52.40	-47.00	-5.40	PK
2437.83	H	-55.20	-47.00	-8.20	PK
2943.62	V	-60.87	-47.00	-13.87	PK

F.7 Receiver Blocking

Test Mode	Test Channel (MHz)	Wanted Signal Mean Power from Companion Device (dBm)	Blocking Signal Frequency (MHz)	Blocking Signal Power (dBm)		Type of Blocking Signal	PER(%)		Test Result
				Test Value	Limit		Test Value	Limit	
BLE_1M	2402	-68	2380	-25	≥-34	CW	5.67	10	Pass
			2504	-32	≥-34	CW	5.73	10	Pass
			2300	-24	≥-34	CW	4.15	10	Pass
			2584	-24	≥-34	CW	6.46	10	Pass
	2480	-68	2380	-26	≥-34	CW	3.72	10	Pass
			2504	-24	≥-34	CW	6.73	10	Pass
			2300	-29	≥-34	CW	6.59	10	Pass
			2584	-23	≥-34	CW	6.98	10	Pass
BLE_2M	2402	-68	2380	-20	≥-34	CW	6.98	10	Pass
			2504	-25	≥-34	CW	6.48	10	Pass
			2300	-17	≥-34	CW	4.23	10	Pass
			2584	-24	≥-34	CW	3.54	10	Pass
	2480	-68	2380	-29	≥-34	CW	5.63	10	Pass
			2504	-32	≥-34	CW	4.67	10	Pass
			2300	-31	≥-34	CW	6.09	10	Pass
			2584	-21	≥-34	CW	3.91	10	Pass